

16(1)

AUTHOR: Borisov, Yu.F.

SOV/43-59-13-9/16

TITLE: Parallel Transfer on a Smooth Surface. IV

PERIODICAL: Vestnik Leningradskogo universiteta, Seriya matematiki, mekhaniki i astronomii, 1959, Nr 13(3), pp 83-92 (USSR)

ABSTRACT: The paper is a continuation of the earlier publications of the author [Ref 1,2,3]. It is proved: A smooth surface the line element $ds^2 = g_{11} du_1^2 + 2g_{12} du_1 du_2 + g_{22} du_2^2$ of which has continuously differentiable coefficients g_{ij} , belongs to the class defined in [Ref 2] then and only then if in every domain with a compact closure it uniformly holds:

$$\frac{\Delta u_i}{\Delta u_j} \xrightarrow{\Delta u_j \rightarrow 0} \frac{1}{2} \left(\frac{\partial g_{ik}}{\partial u_i} + \frac{\partial g_{ik}}{\partial u_j} - \frac{\partial g_{ij}}{\partial u_k} \right).$$

Here $M(u_1, u_2)$ is the position vector of the point with the

Card 1/2

Parallel Transfer on a Smooth Surface. IV

SOV/43-59-13-9/16

coordinates (u_1, u_2) ; $\Delta \varphi_{u_1}$ is the increase of φ_{u_1} for a change of u_j up to $u_j + \Delta u_j$.
There are 5 references, 4 of which are Soviet, and 1 American.

SUBMITTED: January 15, 1958

Card 2/2

BORISOV, Yu.F.

Transformations of pseudo-Euclidean space preserving the isotropic
quality of vectors. Izv. vys. ucheb. zav. mat. no. 6:31-39 '60.
(MIRA 14:1)

1. Leningradskiy gosudarstvennyy universitet.
(Spaces)

84904

16.5600

S/043/60/019/004/007/015

C 111/ C 333

AUTHOR: Borisov, Yu. F.

TITLE: On the Parallel Translation on a Smooth Surface and on a Connection Between a Spatial Form of Smooth Surfaces and Their Intrinsic Geometry

PERIODICAL: Vestnik Leningradskogo universiteta, Seriya matematiki, mekhaniki i astronomii, 1960, Vol.19, No.4, pp.127-129

TEXT: Corrections to the former publications (Ref.1-5) of the author.

Theorem 2(Ref.1), § 2, holds only under an additional demand for existence of an "oriented area" $\Delta(L')$ (see (Ref.1), § 3) of the spherical image of the curve L.

The demand must be also added in the theorems 2*, 3, 3*, 4.

In the definition of the classes of surfaces considered in (Ref.2-4),

$\|a(\tilde{A}_{L,1})\| - \|a(\tilde{A}_{L,n})\|$ must be replaced by $|a(\tilde{A}_{L,1}) - a(\tilde{A}_{L,n})|$.

The results from (Ref.5) are valid for surfaces

Card 1/2

84904

S/043/60/019/004/007/015

C 111/ C 333

On the Parallel Translation on a Smooth Surface and on a
Connection Between a Spatial Form of Smooth Surfaces and Their
Intrinsic Geometry

$$F \in C^{1, 2/3 + \varepsilon}, \quad \varepsilon > 0.$$

The author thanks A. V. Pogorelov and V. A. Zalgaller who
reminded him of his errors.

There are 5 Soviet references.

Card 2/2

BORISOV, Yu. F.

Continuous curvature of irregular surfaces isometric with a portion of a plane. Izv. vys. ucheb. zav.; mat. no.2:3-9 '61.

1. Leningradskiy gosudarstvennyy universitet imeni A. A. Zhdanova.
(Surfaces)

BORISOV, Yu.F.

Half-neighborhood and variations in the length of a curve on
a surface. Trudy Mat. inst. 76:26-48 '65.

(MIRA 18:6)

BORISOV, Yu.F.

~~Cl. α -isometric imbeddings of Riemann spaces. Dokl. AN SSSR 163~~
no.1:11-13 J1 '65. (MIRA 18:7)

1. Institut matematiki Sibirskogo otdeleniya AN SSSR. Submitted
January 4, 1965.

CHERNYSHEV, A.M.; GESS, B.A.; KANAVETS, P.I.; MELENT'YEV, P.N.;
KISELEV, G.P.; TSYLEV, L.M.; BORISOV, Yu.I.; CHERNYKH, V.I.

Metallurgical properties of granules prepared by the
method of chemical catalysis. Trudy IGI 22:39-49 '63.
(MIRA 16:11)

KANAVETS, P.I.; GESS, B.A.; SPORIUS, A.E.; CHERNYSHEV, A.M.;
MELENT'YEV, P.N.; CHERNYKH, V.I.; KHROMYAK, R.P.;
KHAYLOV, B.S.; ~~BORISOV~~, Yu.I.; TSYLEV, L.M.; SOKOLOV, V.S.;
Prinimali uchastiya: MARKIN, A.A.; GORLOV, M.Ya.;
VORONOV, Yu.G.; BULAKHOV, K.A.; KREMYANSKIY, V.L.; ARSHINOV,
G.P.; MAZUN, A.I.; PISARNITSKIY, I.M.; BOKUCHAVA, O.A.;
KIRILLOV, M.V.; TSELUYKO, P.I.; POLYAKOV, G.O.; REZKOV, A.S.;
ZHUGHKOV, M.I.; ROMASHKIN, A.S.; ZUBKOV, A.S.; KOZLOV, N.N.

Pilot plant for the nodulizing of finely ground charge mix-
tures by the method of chemical catalysis. Trudy IGI 22:
93-109 '63. (MIRA 16:11)

KANAVETS, P.I.; GESS, B.A.; SPORIUS, A.E.; MELENT'YEV, P.N.;
CHERNYSHEV, A.M.; CHERNYKH, V.I.; KHAYLOV, B.S.; BORISOV, Yu.I.

Experimental pilot plant stand for the nodulizing of finely
ground materials by the method of chemical catalysis. Trudy
IGI 22:57-69 '63. (MIRA 16:11)

GESS, B.A.; CHERNYSHEV, A.M.; KANAVETS, P.I.; MELENT'YEV, P.N.;
KHROMYAK, R.P.; VORONOV, Yu.G.; TSYLEV, L.M.; CHERNYKH, V.I.;
BORISOV, Yu.I.; SPORIUS, A.E.; Prinimali uchastiye: TOLEROV,
D.D.; MINKIN, V.M.; MARKIN, A.A.; GORLOV, M.Ya.; KHAYLOV, B.S.

Experimental blast furnace smelting with replacement in
the charge of 20-per cent of the fluxed sinter by granules
prepared by chemical catalysis. Trudy IGI 22:110-113 '63.
(MIRA 16:11)

CHERNYSHEV, A.M.; GESS, B.A.; KANAVETS, P.L.; MELENT'YEV, P.N.;
KHODAK, L.Z.; SOKOLOV, G.A.; BORISOV, Yu.I.; CHERNYKH, V.I.;
Prinimali uchastiye: VAVILOV, N.S.; MAKARCHENKO, V.G.;
KISELEV, G.P.; VOLNISTOVA, R.A.; MOREYEVA, G.P.

Testing granules made by the method of chemical catalysis
in a laboratory shaft furnace. Trudy IGI 22:70-78 '63.
(MIRA 16:11)

BORISOV, Yu.I. (Moskva); KHODAK, L.Z. (Moskva)

Certain regularities of the charge movement in blast furnaces. Izv.
AN SSSR. Met. no.3:3-10 My-Je '65. (MIRA 18:7)

BORISOV, Yu.I.; KHODAK, L.Z.

Mechanism of the flow of loose materials through an outlet. Inzh.-fiz.
zhur. 8 no.6:712-719 Je '65. (MIRA 18:7)

1. Institut metallurgii imeni Baykova, Moskva.

25(6)

SOV/91-59-5-16/27

AUTHOR: Borisov, Yu.K., Engineer

TITLE: A Contrivance for Imitation of Cut-Out (Ustroystvo dlya imitatsii vyklyuchatelya)

PERIODICAL: Energetik, 1959, Nr 5, p 28 (USSR)

ABSTRACT: The author describes his invention for checking the correctness of assembly of control panels, depicted schematically in Figure 1, provided with relays EP-101, RU-2, EPV-32, with PEL-0.5, PEL-0.6 and PEL-0.08 wires. The contrivance is said to be simple and well functioning. There is 1 circuit diagram.

Card 1/1

SOKOLOV, Mikhail Mikhaylovich; BORISOV, Yu.M., redaktor; VORONTSOV,
F.F., redaktor; VORONIN, K.F., ~~redaktor~~ tekhnicheskiy redaktor.

[Electric drive and electric power supply of industrial enter-
prises] Elektroprivod i elektrosnabzhenie promyshlennykh
predpriatii. Moskva, Gos.energ. izd-vo, 1955. 352 p. (MLRA 8:12)
(Electric power)

PHASE I BOOK EXPLOITATION 1057

Borisov, Yuriy Matveyevich and Sokolov, Mikhail Mikhaylovich

Elektrooborudovaniye pod'yemno-transportnykh mashin (Electric Equipment of Hoisting and Conveying Machinery) Moscow, Mashgiz, 1958. 400 p. 20,000 copies printed.

Reviewers: Basharin, A. V., Doctor of Technical Sciences, and Petrov, I. I., Doctor of Technical Sciences; Ed.: Silayev, E. F., Engineer; Ed. of Publishing House: Osipova, L. A.; Tech. Ed.: El'kind, V. D.; Managing Ed. for literature on heavy machine building (Mashgiz): Golovin, S. Ya.

PURPOSE: This book has been approved by the Ministry of Higher Education of the USSR as a textbook for students of machine-building and polytechnical vuzes, especially for those specializing in hoisting and conveying machinery. The book may also be useful to students of power-engineering vuzes specializing in electrical equipment for general industrial purposes.

COVERAGE: The book corresponds to the course "Electrical Equipment and Automatic Control of Hoisting and Conveying Machinery" given in machine-building vuzes. The book describes the electrical equipment of cranes, hoists,
Card 1/b

Electric Equipment of Hoisting (Cont.)

1057

conveyers, and excavators and discusses the theory of electric drives and their control. The author thanks Yu.D. Kapuntsov for his help and Candidate of Technical Sciences V. I. Klyuchev for writing Chapter 11. There are 27 Soviet references.

TABLE OF CONTENTS:

Foreword	3
Ch. 1. General Problems	5
1. The electric drive	5
2. Motion equation of an electric drive	8
3. Steady-state conditions and transient processes. Load diagrams	10
4. Determination of the static resistance moment applied to the motor shaft	12
5. Determination of the flywheel moment applied to the motor shaft	15
6. Mechanical and speed characteristics	17
7. Speed regulation	20
8. Motor current-carrying capacity and permissible moments	23

Card 2/9

Electrical Equipment of Hoisting (Cont.)	1057
Ch. 2. Electromechanical Properties of Motors	25
A. D-c motors	
Shunt motors	
1. Natural speed and mechanical characteristics	25
2. Speed regulation	28
3. Starting the motor	34
4. Motor braking conditions	38
5. Armature circuit with potentiometer-connected rheostat	44
Series motors	47
6. Natural and mechanical characteristics	47
7. Speed regulation	49
8. Starting the motor	51
9. Motor braking conditions	54
10. Armature circuit with potentiometer-connected rheostat	59
Compound motors	66
11. Natural and mechanical characteristics	66
12. Speed regulation, starting and braking conditions of motors	67

Card 36

Electrical Equipment of Hoisting (Cont.)

1057

B. Induction motors	
13. Natural characteristic of an induction motor	72
14. Speed regulation of induction motors	78
15. Starting of induction motors	83
16. Braking conditions of induction motors	89
17. Asymetric feeding of stator winding in induction motors	94
Ch. 3. Complex Electric Drive Systems	96
1. Motor-generator system	96
2. Dynamolectric amplifier with cross-magnetizing field in a motor-generator system	99
3. Operation of motors on a common shaft	107
4. Control system of induction motors with saturable reactors	111
5. Synchronous rotation systems	115
Ch. 4. Transient Processes and Load Diagrams of an Electric Drive	121
1. Analytical method of calculating transient processes in the case of a rectilinear mechanical characteristic of a motor at $M_g = \text{const}$	121
2. Graphic-analytical methods of calculating transient processes	129

Card 4/9

Electrical Equipment of Hoisting (Cont.)

1057

- | | |
|---|-----|
| 3. Calculation of transient processes by average moment | 132 |
| 4. Determination of the path during transient processes | 134 |
| 5. Transient processes in a motor-generator system | 135 |
| 6. Energy losses during transient processes | 146 |

Ch. 5. Motor Selection 152

- | | |
|--|-----|
| 1. General information | 152 |
| 2. Heating and cooling of motors | 159 |
| 3. Insulation of motor windings. General considerations
in selecting motor capacity | 161 |
| 4. Rated conditions of motor operation | 162 |
| 5. Selection of motor size for prolonged operation | 166 |
| 6. Selection of motor size for short-period operation | 172 |
| 7. Selection of motor size for intermittent short-period
operation | 174 |
| 8. Permissible number of starts per hour for squirrel-
cage motors | 181 |

Card 5/6

Electrical Equipment of Hoisting (Cont.)	1057
9. Selection of motor capacity for ambient temperature other than 35°C	185
Ch. 6. Protective and Control Equipment	188
1. Manual control equipment	188
2. Contactors	191
3. Automatic equipment	195
4. Relays	196
5. Fuses	203
6. Limit and control switches	203
7. Pushbutton stations and command controllers	210
8. Braking equipment	212
9. Resistors	219
Ch. 7. Control of Electric Drives	222
1. General information	222
2. Principles of control for starting electric motors	227
3. Principles of control for braking electric motors	231
4. Blocking circuits in control system of hoist and conveyer motors	235
5. Examples of the most widely used control systems for electric drives	239
Card 6/9	

Electrical Equipment of Hoisting (Cont.)

1057

Ch. 8. Electrical Equipment for Cranes	249
1. General information	249
2. Equipment for hoisting machinery	252
3. Protective panels	258
4. Controller operation of crane motors	259
5. Magnetic contact controllers	270
6. Selecting the capacity of crane motors	291
7. Contact wires (trolleys)	300
8. Complete diagrams and specifications of crane electrical equipment	305
Ch. 9. Electrical Equipment for Elevators	310
1. General information	310
2. Speed, acceleration and acceleration derivative of the elevator cabin	312
3. Exact stopping of elevator cabins	313
4. Equipment for passenger elevators	317
5. Electric drive systems of elevators	320
6. Selecting the capacity of elevator motors	321

Card 7/9

Electrical Equipment of Hoisting (Cont.)	1057
7. Electric drive system of slow-speed passenger elevator	331
8. Electric drive system of a freight elevator with lever control	333
9. Control of a passenger elevator with a two-speed induction motor	335
10. Control of high-speed and very-high-speed passenger elevators	337
Ch. 10. Electrical Equipment for Continuous Conveying Machinery	346
1. General information	346
2. Selection of conveyer electric drive	348
3. Synchronized rotation of several conveyer motors	355
4. Automatic control systems of conveyers	358
5. Continuous conveying machines for passenger transport	362
Ch. 11. Electrical Equipment of Single-bucket Excavators	368

Card 8/9

Electrical Equipment of Hoisting (Cont.)

1057

- | | |
|--|-----|
| 1. General information | 368 |
| 2. A-c electric drive for the basic mechanisms of excavators | 374 |
| 3. D-c electric drive for the basic mechanisms of excavators | 383 |

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397

AVAILABLE: Library of Congress

Card 9/9

JP/gmp
1-30-59

AFANAS'YEV, Vasilii Danilovich; BORISOV, Yuriy Matveyevich; GUREVICH, Azriyel' Yefimovich; LEVITANSKIY, Boris Aronovich; MAKEYEV, Ivan Fedorovich; STEFANOVICH, Nikolay Nikolayevich; KHALIZEV, Georgiy Petrovich, kand. tekhn. nauk; SINITSYN, O.A., kand. tekhn. nauk, retsenzent; NEMIROVSKIY, M.I., преподаvatel', retsenzent; YAKOVENKO, N.N., red. izd-va; ISLENT'YEVA, P.G., tekhn. red.

[Electrical equipment of ferrous metallurgy enterprises] Elektro-oborudovanie predpriyatii chernoi metallurgii. [By] V.D.Afanas'yev i dr. Moskva, Metallurgizdat, 1963. 606 p. (MIRA 16:9)

1. Dnepropetrovskiy metallurgicheskiy tekhnikum (for Nemirovskiy). (Iron and steel plants--Electric equipment)

110211
12.04/10 (1029, 1159, 1139)

29358
S/122/61/000/010/003/011
D221/D304

AUTHORS: Polkovnikov, V.S., Candidate of Technical Sciences,
Semenov, L.N., Engineer and Borisov, Yu.M., Candidate
of Technical Sciences

TITLE: Remote control of hoisting cranes

PERIODICAL: Vestnik mashinostroyeniya, ⁴¹no 10, 1961, 17 - 20

TEXT: Remote control employs several generators of sonic frequencies, operated by coded switches or by a special control apparatus. Frequency modulation is preferable due to smaller power requirements and lesser sensitivity to interference. The prototype was developed and made in the Laboratory of Hoisting and Transporting machines of MVTU im. Bauman, and applied to a 10 ton crane. It is based on the portable transmitter O2P2(XCP-4P) (O2R2(ZhR-4P)), which produces FM signals in the band of 36-46 Mc. The prototype uses carrier frequency of 42.75 Mc, power of transmitter is 0.1 watt, ensuring a reliable connection within 0.5- 1 km. The antenna is formed by a 145 cm flexible rod. A detailed description of trans-

Card 1/5

29338

S/122/61/000/010/003/011
D221/D304

Remote control of hoisting cranes

mitter is given in the makers' instructions (Footnote reference: Radiostantsiya tipa ZhR-4P. Kratkoye opisaniye i instruktsiya po ekspluatatsii, remontu i nastroike. Sovet narodnogo khozyaystva BSSR, 1958). The source of sonic frequencies is made up of RC generators, due to their stable frequency characteristics as well as good wave form, simple design and operation. The one valve RC generator with a phase modulating circuit is illustrated in Fig. 4. Its amplification includes the positive feedback of modulating circuit consisting of R_1 , R_2 , R_3 , C_1 , C_2 and C_3 . The basic diagram of block

of sonic frequency generators is shown in Fig. 5, which includes subminiature valves, 2Zh15E (2Zh15B), heated by 2.2 v, 14 ma, with an anode current of 1.5 ma at 60 v. Two sonic frequency channels are used. An emergency channel is used for no-voltage protection. Another channel is used for switching on an audible signal. In the case of a crane with three mechanisms and a lifting magnet it is necessary to have 6 channels. Multi-pulse binary code can be used to reduce the number of sonic frequencies required for transmitting signals to electric motors. The block has 6 generators. Those with two fixed frequencies feed the controls of motors and the

Card 2/5

²⁹³³⁸
S/122/61/000/010/003/011
D221/D304

Remote control of hoisting cranes

electromagnet, whereas the generators with one frequency feed the emergency channel. The former have two resistance branches in the last loop of phase modulation. A buffer cascade (valve 7J1 (7A)) is employed as load match for generators, and its output of 1v is fed to the modulator of the transmitter. Connection of generators or resistances of phase modulating circuit is ensured by contactors KHL, KBL, ..., KA, push buttons or lever switches mounted on the control panel. Electrical interlocking with emergency switch as well as for changes in rotation of crane motor is ensured by micro-switches. The emergency signal can be fed when the control panel is in zero position. The controller produces signals of inadequate length during fast movements of handle. The prototype used telephone jacks for operating the controller, thus eliminating the complicated system of electrical and mechanical interlocks. Its drawback is that only visual observation allows the position of controller to be determined. Power supplies are provided by an alkaline battery, 2 H-4 (2ZhN-4) which is sufficient for 5 hours work. Anodes and grids are fed by crystal triodes, 1B-B (PZ-V) forming a converter, with a bridge circuit with four diodes, 2D-424 (DG-Ts24)

Card 3/5

Remote control of hoisting cranes

29338 S/122/61/000/010/003/011
D221/D304

and a rectifier (half-wave) diode 2B (D2V). The end of the article is to follow in the next issue. There are 7 figures.

Fig. 4. Resistance-capacitance generator.

Legend: 1 - C_{out} .

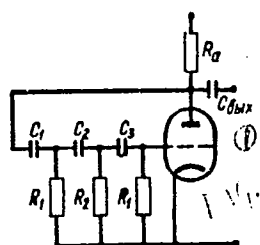


Рис. 4. Резистивно-емкостный генератор.

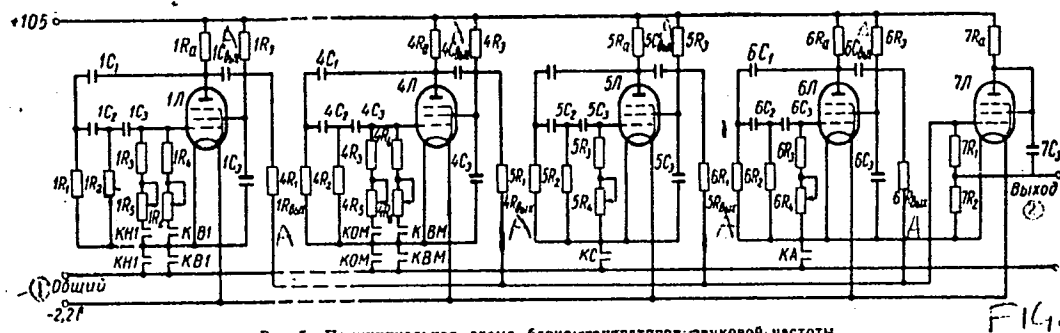
Card 4/5

29338 S/122/61/000/010/003/011
D221/D304

Remote control of hoisting cranes

Fig. 5. Basic diagram of block of sonic frequency generators.

Legend: 1 - Common; 2 - output; subscripts A - output.



Card 5/5

POLKOVNIKOV, V.S., kand.tekhn.nauk, dotsent; SEMENOV, L.N., inzh.;
BORISOV, Yu.M., kand.tekhn.nauk, dotsent

Remote control of cranes. Vest.mash. 41 no.11:25-33 N '61.
(MIRA 14:11)

(Cranes, derricks, etc.)
(Remote control)

BORISOV, Yuriy Nikitovich; POGOZHEV, Vladimir Alekseyevich; SAVENKO, Vitaliy Aleksandrovich; SAGORINSKIY, B.S., red.; IZHBOLDINA, S.I., tekhn. red.

[Ceramics cut metals]Keramika rezhet metall. Stalingrad, Stalingradskoe knizhnoe izd-vo, 1961. 32 p. (MIRA 15:11)
(Metal cutting tools) (Ceramic metals)

BORISOV, Yu.P., kand. tekhn. nauk.

Detection of radio pulses in the presence of harmonic oscillations.
Trudy MEI no.31:93-105 '56 (MIRA 13:3)
(Detectors, Radio)

BORISOV, Yu.P.; RYABININA, Z.K.

Problems related to processing ~~the~~ data used in calculating
reservoir discontinuity. Nauch.-tekhn. sbor. po dob. nefti
no.21:77-84 '63. (MIRA 17:5)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy
institut.

BORISOV, Yu.P.

~~_____~~ Determining well output in connection with the joint operation of
several series of wells. Trudy MNI no.11:170-184 '51. (MLRA 10:3)
(Oil fields) (Oil wells)

BORISOV, YU. F.

BORISOV, YU. F. -- "HYRDODYNAMIC INVESTIGATIONS ACCORDING TO THE ESTABLISHMENT OF PLANS OF THE DISTRIBUTION OF OIL WELLS." SUB 17 JUN 52, MOSCOW ORDER OF LABOR RED BANNER PETROLEUM INST INENI ACADEMICIAN I. M. GUDKIN (DISSERTATION FOR THE DEGREE OF CANDIDATE IN TECHNICAL SCIENCES)

SO: VECHERNAYA MOSKVA, JANUARY-DECEMBER 1952

BORISOV, Yu. P.

AID P - 2732

Subject : USSR/Mining

Card 1/2 Pub. 78 - 2/22

Authors : Krylov, A. P., Dunayev, F. F., Borisov, Yu. P. and Buchin, A. N.

Title : Against the low-level discussion of questions relating to the exploitation of oil deposits

Periodical : Neft. khoz., 33, 7, 4-18, J1 1955

Abstract : This is a sharp rebuke to M. V. Mkrtchyan for his article "Questions relating to a planned exploitation of oil deposits" published in this journal, No. 2, 1955 in which he criticized the present Soviet petroleum industry and advocated a more planned oil exploitation. The authors present a number of formulae, tables and charts to prove that the assertions of Mkrtchyan are completely wrong and his method of analysis is unscientific.

AID P - 2732

Neft. khoz., 33, 7, 4-18, J1 1955

Card 2/2 Pub. 78 - 2/22

Institution : TsIMTNeft' (Central Scientific Research Institute
for the Mechanization and Organization of Labor in
the Petroleum Industry)

Submitted : No date

SOV/124-57-4-4477

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 4, p 87 (USSR)

AUTHOR: Borisov, Yu. P.

TITLE: Efficient Placement of Oil Wells in a Strip-shaped Reservoir
(O ratsional'nom razmeshchenii neftyanykh skvazhin v polosovoy zalezhi)

PERIODICAL: Tr. Vses. neftegaz. n.-i. in-t, 1956, Nr 8, pp 66-113

ABSTRACT: The problems of the rational placement of rows of producing wells over an infinite, strip-shaped oil deposit is examined. It is assumed that the reservoir possesses uniform physical properties, that it is water-driven, and that the wells operate under a single, prescribed pressure. The term "efficient placement" of the producing wells refers to an arrangement of wells above an oil reservoir so as to ensure its exploitation by a given number of wells in the shortest possible time. A mathematical solution of the problem is given, also a nomogram which facilitates the calculation.

G. L. Govorova.

Card 1/1

SOV/124-57-5-5803

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 5, p 110 (USSR)

AUTHOR: Borisov, Yu. P.

TITLE: On Hydrodynamic Calculations Relative to the Elastic Regime of Seepage Flow (K gidrodinamicheskim raschetam pri uprugom rezhime)

PERIODICAL: Tr. Vses. neftegaz. n.-i. in-t, 1956, Nr 8, pp 208-231

ABSTRACT: The pressure distribution of a liquid is solved for a homogeneous infinite layer under the conditions of the elastic regime of seepage. The following cases of withdrawal of the liquid from the layer are studied: 1) By a single well having a negligibly small radius, 2) by a circular battery of wells, and 3) by a rectilinear drainage gallery. In all cases the yield rate of the liquid removed varies with time. The author begins with the well-known integral representation of the pressure distribution in terms of the variable yield. The proposed approximate solution is based on the choice of certain approximate expressions for the kernel of this integral representation, which expressions ultimately enable the author to set up the final form of the time-dependent yield according to an integer-exponent law. Computational

Card 1/2

SOV/124-57-5-5803

On Hydrodynamic Calculations Relative to the Elastic Regime of Seepage Flow

formulas, graphs, and tables are given for the case of a yield that varies in accordance with a linear law; these, likewise, enable the author to set up the solution for the case of a yield that varies with time according to an arbitrary broken line. It should be noted that for cases 1) and 3) above, the exact solutions for all the problems investigated by the author can be represented in an elementary manner by means of simple self-similar solutions, of which the author must have been unaware (see G. I. Barenblatt, Prikl. matem. i mekhanika, 1952, Vol 16, Nr 1). Thus, the fairly cumbersome technique of approximate solutions proposed by the author does not appear justified.

G. I. Barenblatt

Card 2/2

BORISOV, Yu. P.

PIKHACHEV, Georgiy Borisovich; YEVDOKIMOVA, V.A., преподаватель кафедры
доцент, кандидат технических наук, рецензент; BORISOV, Yu.P.,
кандидат технических наук, рецензент; VATOLIN, G.E., ведущий
редактор; POLOSINA, A.S., технический редактор

[Collection of problems for the course "Underground Hydraulics."]
Sbornik zadach po kursu "Podzemnaya gidravlika." Moskva, Gos.
nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, 1957. 80 p.
(MLRA 10:7)

1. Кафедра "Общей и подземной гидравлики" Московского нефтяного
института им. акад. И.М.Губкина (for Yevdokimov, Borisov)
(Hydraulics--Problems, exercises, etc.)
(Petroleum engineering)

Borisov, Yu. P.

93-5-6/19

AUTHOR: Krylov, A. P., Borisov, Yu. P., Buchin, A. N.,
Virnovskiy, A. S., Rozenberg, M. D., Efros, D. A.

TITLE: Feasibility of Raising Production and Lowering Capital
Expenditures in the Development of Oil Fields
(O vozmozhnosti povysheniya dobychi i snizheniya
kapital'nykh zatrat pri razrabotke neftyanykh
mestorozhdeniy)

PERIODICAL: Neftyanoye Khozyaystvo, 1957, Nr 5, pp. 21-30 (USSR)

ABSTRACT: The article attempts to justify a method of intensifying
the exploitation of oil deposits by lowering the bottom
hole pressure of the producing wells and increasing the
pressure of the injection wells. In eastern oil fields
the intensity of the bottom hole pressure in producing
wells was determined by two conditions, namely, that the
separation of gas from oil in the formation be prevented
and that a free-flow production be maintained. Research
work conducted by the VNI^I(All-Union Scientific Research
Institute) and the Petroleum Institute of the AN SSSR as

Card 1/7

Feasibility of Raising Production and Lowering Capital 93-5-6/19
(Cont.)

well as that conducted abroad lead to the conclusion that when the mixture of oil and gas are driven by water the oil production would not be lower than that obtained in the absence of free gas in the formation. There are some grounds for believing that by lowering the formation pressure below the saturation pressure it will be possible not only to maintain the same rate of oil flow from the formation but also to increase it. Periodical and experimental work conducted in recent years by the VNII and other research organizations confirmed the above mentioned proposition. In 1953, an Ufa Scientific Research Institute crew experimented with two wells in the Tyumazy oil fields, wherein the bottom hole pressure was kept below the saturation pressure, the formation pressure being higher than the saturation pressure. Electric submersible pumps were used to bring the oil to the surface. The oil produced amounted to 70-80 per cent of that obtained when the bottom hole pressure was higher than the saturation pressure. Another problem arises when the bottom hole pressure drops below the saturation pressure. Under such conditions paraffin may begin to form in the area surrounding the hole. The temperature and pressure ranges in oil fields of Bashkiriya

Card 2/7

Feasibility of Raising Production and Lowering Capital (Cont.) 93-5-6/19

and Tatariya are, however, high enough to prevent the formation of paraffin. With respect to the condition of keeping the production on a free-flow basis, the author states that the experience with the Tyumazy wells shows that, even if electric submersible pumps are used, the increase in cost is too insignificant (2-5 rubles per ton) to be of serious concern. The pressure differential between the pressure of the injection wells and the bottom hole pressure of the producing wells may be increased by raising the pressure of the injection wells. As a result the oil output increases but so does the cost of water and electric power and the number of injection wells. The lowering of the bottom hole pressure and the raising of the pressure of the injection wells have also their negative aspects. In order to evaluate the effectiveness of these measures, hydrodynamic and economic calculations have been made on the basis of concrete experiments. These were conducted at two different types of oil fields, namely: 1) Romashkinskiye and Tyumazy-type oil fields and 2) Zhirnoye-type oil fields. In the first case, a 19.8 x 6 km sector was taken. Injection wells were located

Card 3/7

Feasibility of Raising Production and Lowering Capital 93-5-6/19
(Cont.)

along straight lines lying on both sides of a given sector and at a distance of 750 m from it. The producing wells were located along straight lines equidistant from each other. Five variations are given as well as the characteristics of the oil field, e. g., thickness of the formation, porosity, viscosity of the oil, saturation pressure, etc. For each variation fifteen pressure combinations were taken so that overall 75 different combinations were analyzed. It was assumed that the viscosity of the oil and water were constant throughout the oil field. The elasticity of the formation and of the fluids was disregarded. When the injection well pressure was increased to 225 atm 33-70% of the water injected escaped into the surrounding formations without affecting the oil-bearing formation. By raising the injection pressure to 275 atm the water loss amounted to 40-76%. When the bottom hole pressure dropped below the saturation pressure, the increase in the viscosity of the oil and the decrease in the permeability of the formation caused by the separation of the gas from oil were taken into account. The oil output increased although not as fast as the pressure drop. Water loss called for more injection wells. In the second case (Zhirnoye oil fields),

Card 4/7

Feasibility of Raising Production and Lowering Capital ^{93-5-6/19} (Cont.)

a 6 x 3 km sector was taken. The injection pressures were 106, 130 and 160 atm, each with four different bottom hole pressures, namely: 97, 75, 50 and 25 atm, the overall number of combinations being 12. Electric centrifugal submersible pumps, tubular goods and wires designed by the OKB (Office of Special Design), were used. In calculations, the cost of a producing well was taken to be 1 million rubles, that of an injection well 1.2 million rubles. Capital outlays for the organization and equipment varied depending on the number of producing wells, the volume of oil production, number of injection wells, quality and quantity of electric submersible pumps (En-250-800 and *AyaP*-3-150-600 types mentioned), etc. Current production outlays were calculated according to the standard accounting system. Servicing of one well with an electric submersible pump was taken to cost 10,000 rubles per annum. The cost of 1 kw-hr was taken to be 10 kop. The results of these calculations are shown in Fig. 3 (Romashinskiye oil fields) and Fig.4 (Zhirnoye oil field). The diagram in Fig. 3 shows the dependence of the per ton cost of oil on the average annual level of production under

Card 5/7

Feasibility of Raising Production and Lowering Capital 93-5-6/19
(Cont.)

various operating conditions. The diagram in Fig. 4 shows that the intensification of the output within set limits can be accomplished expediently only by lowering the bottom hole pressure in the producing wells. In conclusion the author states that calculations conducted point to the expediency of increasing the difference between the injection well pressures and the bottom hole pressures of the producing wells. These measures, if carried through, increase the production and lower the capital investments required for the development of new oil fields. On the basis of these results, in planning a system for the development of an oil field one should consider patterns in which injection pressure would be increased in injection wells lying along a line splitting the oil field (center-to-edge flooding). The bottom hole pressure of the producing wells may be lowered but not below 25% of the saturation pressure. The expediency of further lowering of this pressure must be confirmed by laboratory tests. The Soviet industry must produce a wider assortment of electrical submersible pumps to meet various oil production requirements. More research work should be done in this field. There are four figures and eight references, three

Card 6/7

Feasibility of Raising Production and Lowering Capital ^{93-5-6/19}
(Cont.)

of which are Slavic.

AVAILABLE: Library of Congress

Card 7/7

AUTHORS: *BORISOV, Yu. P.*
Borisov, Yu. P., and Orlov, V.S. 93-57-7-11/22

TITLE: Interpretation and Use of Bottom Hole Pressure Build-up
Data for Isobar Map Construction (Interpretatsiya
dannyykh vosstanovleniya zaboynogo davleniya i ikh
ispol'zovaniye pri postroyenii kart izobar)

PERIODICAL: Neftyanoye khozyaystvo, 1957, Nr 7, pp 39-43 (USSR)

ABSTRACT: The article analyzes the bottom hole pressure build-up
process and the possibility of using the data for isobar
map construction. The build-up characteristics for shut-in
wells producing from infinite formations of homogeneous
fluid and from finite formations of nonhomogeneous fluid
are defined by equations. Theoretically, the relationship
between the variation in pressure with respect to time
must be linear, but in practice it is not so. Miller and
co-workers [Ref.6], using an electrical analyzer, and also

Card 1/3

Interpretation and Use of Bottom Hole (Cont.)

93-57-7-11/22

the All-Union Instrument Scientific Research Institute (VNII), using a hydrointegrator showed that the linear relationship is disturbed initially and that afterwards the bottom pressure is proportional to the logarithm of time. Furthermore, VNII revealed that the coefficient of the angle of the linear relationship can either decrease or increase depending on variation in the formation segments away from the well [Fig. 1]. An increase signifies a drastic decline in the formation's permeability and a decrease signifies a rise in permeability. The relationship between pressure and time for a nonhomogeneous formation can deviate from the straight line in either direction (Figs. 2,3). Up till now scientists maintained that only the permeability must be determined, and in known cases of well imperfection also the piezoconductivity. However, this may lead to inaccuracies since the error occurring from the calculations of the drainage area with the aid of plots devised by V.I. Shchurov' and M. Muskat is substantial and I.A. Charnyy's [1] evaluation of the drainage radius is unacceptable. The authors conclude that the

Card 2/3

Interpretation and Use of Bottom Hole (Cont.)

93-57-7-11/22

formation permeability around the wells, the imperfection of wells, and the variation in permeability of segments away from the wells can be determined with the aid of pressure build-up curves. The data on pressure build-up are used for the construction of isobar maps. Isobar map construction requires knowledge of the manometer's time lag at the bore hole and since this is quite impossible to obtain the authors suggest taking the average pressure around the well and calculate it with the aid of pressure build-up curves and thus eliminate the necessity of stopping the well for the determination of the average pressure. An isobar map constructed on the basis of average pressure will not reflect the actual pressure distribution, but will eliminate arbitrariness in the construction of static pressure maps. This method of calculating average pressure is simpler and more reliable than the one proposed by D.R. Horner [Ref.3]. There are 3 figures and 6 references of which 3 are English and 3 are Soviet.

AVAILABLE: Library of Congress

Card 3/3 1. Pressure=Applications

BORISOV, Yu.P.; DOROKHOV, O.I.

Simplifying calculations of basic indices of the development of
banded sections of oil pools. Trudy VNII no.10:240-246 '57.

(MIRA 14:6)

(Oil reservoir engineering)

BORISOV, YU. P.

24-11-11/31

AUTHORS: Barenblatt, G.I. Borisov, Yu. P., Kamenetskiy, S. G. and Krylov, A. P. (Moscow)

TITLE: On determining the parameters of an oil bearing stratum from data of the pressure build-up in stopped wells.
(Ob opredelenii parametrov neftenosnogo plasta po dannym o vosstanovlenii davleniya v ostanovlennykh skvazhinakh)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1957, No.11, pp.84-91 (USSR)

ABSTRACT: In this paper a method is described of determining the parameters of the stratum and the well from the initial section of the bottom-hole pressure build-up characteristic. The method is based on an accurate solution of the respective inverse problems of the theory of the elastic regime and involves calculation of the integrals of an empirical function representing the pressure build-up characteristic. The approximate calculation of the integrals is effected much more accurately than the approximate calculation of the derivatives and particularly of the second derivatives of the empirical function. The method is applicable equally to gusher wells, compressor Card 1/2 and pump operated wells. It is shown in the paper that a

24-11-11/31

On determining the parameters of an oil bearing stratum from data of the pressure build-up in stopped wells.

slight modification of the method permits determining the parameters of the stratum from the data of the changes in the flow rate and the pressure of the liquid at any transient regime and not only from the data on the bottom-hole pressure build-up characteristic in the stopped well. The method is also applicable to gas bearing strata. The application of the method is illustrated by two examples, one relating to data derived from model tests and another from a well with a flow rate prior to stoppage of 115 tons per day and a specific gravity of the oil in the stratum of 0.825 exploited through a 6 inch dia. column, a 2.5 inch dia. of the lifting tube with data of the pressure build-up characteristic as given in the Table, p.91.

There are 3 figures, 1 table and 17 references, 13 of which are Slavic.

SUBMITTED: June 10, 1957.

ASSOCIATIONS: Oil Institute Ac.Sc. USSR (Institut Nefti AN SSSR),
All Union Scientific Oil Research Institute (Vsesoyuznyy
Nauchno-Issledovatel'skiy Neftyanoy Institut)

AVAILABLE: Library of Congress.

Card 2/2

BORISOV, Yu. P.

MURAV'YEV, Ivan Mikhaylovich, professor; ANDRIASOV, Ruben Samsonovich, dotsent; GIMATUDINOV, Shamil' Kashafovich, kand. tekhn.nauk; GOVOROVA, Galina Leonidovna, dotsent; POLOZKOV, Vladimir Tikhonovich, dotsent; BORISOV, Yu.P., kand.tekhn.nauk, red.; SAVINA, Z.A., ved.red.; MUKHINA, E.A., tekhn.red.

[Development and exploitation of oil and gas fields] Razrabotka i ekspluatatsiia neftiannykh i gazovykh mestorozhdenii. Pod obshchei red. I.M. Murav'eva. Moskva, Gos. nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, 1958. 495 p. (MIRA 11:12)
(Oil fields) (Gas, Natural)

APEL'TSYN, I.E., doktor tekhn.nauk; BARS, Ye.A., kand.geol.-min.nauk;
BORISOV, Yu.P., kand.tekhn.nauk; VELIKOVSKIY, A.S., prof.; VYSOTSKIY,
I.V., kand.geol.min.nauk; GOVOROVA, G.L., dots.; DAKHNOV, V.N., prof.
ZHDANOV, M.A., prof.; ZHUKOV, A.I., dots.; KOTYAKHOV, F.I., prof.;
KREMS, A.Ye., doktor geol.-min.nauk; MURAV'YEV, I.M., prof.;
MUSHIN, A.Z., inzh.; NAMIOT, A.Kh., kand.tekhn.nauk; KHODANOVICH,
I.Ye., kand.tekhn.nauk; KHLYSTOV, V.T., inzh.; CHERNOV, B.G., kand.
tekhn.nauk; SHUROV, V.I., dots.; SAVINA, Z.A., vedushchiy red.;
POLOSINA, A.S., tekhn.red.

[Manual fo petroleum extraction] Spravochnik po dobyche nefi.
Pod obshchei red. I.M.Murav'eva. Moskva, Gos. anuchno-tekh.izd-vo
neft. i gorno-toplivnoi lit-ry. Vol. 1. 1958. 540 p. (MIRA 11:4)
(Petroleum industry)

AUTHOR: Trebin, F. A., ~~Borisov, Yu. P.~~, and Mukharskiy, E. D. SOV/93-58-8-9/15

TITLE: The Determination of Reservoir Characteristics by Means of Pressure Build-up Curves Which Include the Effect of Flow Into the Well After Shut-in (K opredeleniyu parametrov plasta po krivym vosstanovleniya davleniya s uchetom pritoka zhidkosti v skvazhinu posle yeye zakrytiya)

PERIODICAL: Neftyanoye khozyaystvo, 1958, Nr 8, pp. 38-46 (USSR)

ABSTRACT: The prevailing methods for determining reservoir characteristics by means of pressure build-up curves [Ref. 1, 2] assume that a well is shut off at the bottom at the beginning of the test. Actually, a well is shut off at the top and the flow into the bore hole continues at a diminishing rate. VNII has established by means of a hydraulic integrator [Ref. 4] that when the build-up data refer to a period of negligible influx the well may be considered as shut off at the beginning of the test and the results will be reliable. American scientists have established the

Card 1/5

SOV/93-58-8-9/15

The Determination of Reservoir (Cont.)

same fact by using an electrical analyzer [Ref. 10]. The shortcoming of this method is that it requires shutting off the well for a long period which consequently results in loss of production. In view of this shortcoming, the authors of the present article made a critical evaluation of Soviet and American pressure build-up curve construction and interpretation methods including the effect of influx into a well after shut-in [Ref. 4, 5, 6, 7, 8, 9]. As a result it is now possible to determine the reservoir characteristics by the pressure build-up data on the initial curve sections. The authors investigated 30 flowing wells at the Bavly oilfield, where they worked in collaboration with the NPU of 'Bavlyneft' and the TatNII Institute. They state that well 71 at the Sokolovogorskoye oil field is not a

Card 2/5

The Determination of Reservoir (Cont.)

SOV/93-58-8-9/15

typical example of pressure build-up in free flowing wells since the inclusion of the effect of flow into the well after shut-in and the exclusion of this effect gave practically the same results. The authors state that the differential method of Yu. P. Borisov [Ref. 4] is based on the solution of M. Muskat [Ref. 3] for point drainage in an infinite reservoir under elastic filtration conditions and varying yield. The equation developed by Borisov is

$$\Delta P = \frac{\mu}{4\pi k h} \int_0^t \frac{q_0 - q(\tau)}{t - \tau} - \frac{\frac{r^2}{cnp}}{4\mu(t - \tau)} d\tau$$

where q_0 is the producing rate prior to shut-in, $q(\tau)$ - producing rate at time interval τ after shut-in, t - time interval for ΔP_t pressure build-up. The other symbols are the same as those employed in the theory of filtration. The integral method of Barenblatt and co-authors [Ref. 5] is based on the solution of Fourier's boundary conditions at the wall of the well were obtained

Card 3/5

The Determination of Reservoir (Cont.)

SOV/93-58-8-9/15

by comparing the influx into the well in accordance with Darcy's Law, and the problem was solved by the operational method with the aid of the LaPlace Transform. The final expression for free flowing wells is

$$\psi = \frac{S \bar{P}_r(S)}{\frac{S^2}{Q\gamma} [(f_u + f_k) \bar{P}_r(S) - f_u \bar{P}_s(S) - f_k \bar{P}_3(S)]} = - \frac{Q\mu}{4\pi k h} \ln 0.793 \frac{rc^2}{r} S$$

where ψ is a function of S , dependent on the time interval of the well test. The other symbols are the same as those employed in Borisov's formula. The integral and differential methods of I. A. Charnyy and I. D. Umrikhin [Ref. 6] are based on the solution of M. Muskat [Ref. 3] for compressible fluid flow towards

Card 4/5

The Determination of Reservoir (Cont.)

SOV/93-58-8-9/15

the annual drainage radius a . Here the formula is

$$P(r,t) = - \frac{\mu}{4\pi k h} \int_0^t Q(\tau) \frac{e^{-\frac{a^2 + r^2}{4\kappa(t-\tau)}}}{t-\tau} \times I_0 \left[\frac{a^2}{2\kappa(t-\tau)} \right] d\tau$$

where I_0 is the sign of Bessel's function of the first kind, zero order from the imaginary argument. The other symbols are the same as those employed in the earlier formulas. The method suggested by other Soviet and American authors [Ref. 7, 8, 9] considers the partial influx into the well after shut-in and the results are obtained empirically without a suitable hydrodynamic basis. The authors of the present article verify all these methods by means of theoretical pressure build-up curves and present the results in Figs. 1-4. The field data on free flowing wells are published in "Neftyanoye khozyaystvo," 1958, Nr 9. There are 4 figures and 10 references, 7 of which are Soviet and 3 English.

1. Petroleum industry
2. Wells--Mathematical analysis
3. Electrical equipment--Applications

Card 5/5

11(0)

SOV/93-58-9-7/17

AUTHOR: Trebin, F.A., Borisov, Yu.P., and Mukharakiy, E.D.

TITLE: The Determination of Reservoir Characteristics by Means of Pressure Build-up Curves Which Include the Effect of Flow Into the Well After Shut-in (K opredeleniyu parametrov plasta po krivym vosstanovleniya iavleniya s uchetom zhidkosti v skvazhinu posle yeye zakrytiya)

PERIODICAL: Neftyanoye khozyaystvo, 1958, Nr 9, pp 40-47 (USSR)

ABSTRACT: This is a continuation of an article published in "Neftyanoye khozyaystvo," 1958, Nr 8. In that article the authors analyzed integration and differentiation methods for processing data on reservoir pressure build-up. In the present article the authors present the results of processing pressure build-up data by the integration and differentiation methods (Table 1 and Figs. 5-7). The study has determined that Yu.P. Borisov's differentiation method which takes into account the effect of flow into the well after shut-in is of considerable practical value. Table 2 and Fig. 6 present reservoir characteristics which were determined by Yu.P. Borisov's method. There are 3 figures and 2 tables.

Card 1/1

BORISOV, Yu.P.; ORLOV, V.S.

Method for plotting "true" isobars. Trudy VNII 12:66-89 '58.
(MIRA 12:3)
(Oil reservoir engineering) (Atmospheric pressure)

BORISOV, Yu.P.; ROZENBERG, M.D.

Interference of wells when bottom-hole pressures are below and the
outward pore-space pressure is above the saturation pressure. Trudy
VNII 12:166-171 '58. (MIRA 12:3)

(Oil reservoir engineering)

~~Yu~~ Borisov Yu P

BORISOV, Yu. P.; KRYLOV, A. P.

Oil well spacing. Neft. khoz. 36 no.1:37-44 Ja '58.
(Petroleum engineering)

(MIRA 11:2)

BORISOV, Yu.P.

Hydrodynamic calculations in elastic drive and at given pressures.
Nauch.-tekhn. sbor. po dob. nefti no.1:23-26 '58. (MIRA 15:9)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut.
(Oil reservoir engineering)

TREBIN, F.A.; BORISOV, Yu.P.; MUKHARSKIY, E.D.

Determining the parameters of a layer by pressure restoration graphs considering fluid flow into the well after it has been shut off (conclusion). Neft.khoz. 36 no.9:40-47 S '58.

(MIRA 11:12)

(Petroleum engineering)

GOVOROVA, Galina Leonidovna; BORISOV, Yu.P., kand.tekhn.nauk, retsenzent;
PETROVA, Ye.A., vedushchiy red.; POLOSINA, A.S., tekhn.red.

[Problems on the production of oil and gas fields] Sbornik
zadach po razrabotke neftiykh i gazovykh mestorozhdenii.
Moskva, Gos.nauchno-tekhn.izd-vo nef. i gorno-toplivnoi lit-ry,
1959. 242 p. (MIRA 13:1)
(Oil fields--Production methods)

BORISOV, Yu.P., kand.tekhn.nauk

Effect of the number and pattern of wells on oil recovery.
Trudy VNII no.24:3-10 '59. (MIRA 13:5)
(Oil fields--Production methods)

BORISOV, Yu. P., KRYLOV, H. P., PILATOVSKIY, V. P., PISKUNOV, N. S., ROSENBERG, M. D.,
EFROS, D. A. (Moscow)

"The Hydrodynamic Problems of Oil Field Exploitation."

report presented at the First All-Union Congress on Theoretical and Applied
Mechanics, Moscow, 27 Jan - 3 Feb 1960.

BORISOV, Yu. P., Doc Tech Sci -- (diss) "Basic tasks in hydrodynamics in the designing of petroleum deposit development associated with procedures of displacing petroleum by water." Moscow, 1960. 22 pp; (All-Union Petroleum Gas Scientific Research Inst, VNII /Russian abbreviation/); 150 copies; price not given; list of author's works on pp 21-22 (18 entries); (KL, 17-60, 149)

BORISOV, Yu.P., MUKHARSKIY, E.D.

Determining certain parameters of reservoir rocks by drill-stem
testing (to be concluded). Neft. khoz. 38 no.1:56-59 Ja '60.

(MIRA 13:7)

(Oil sands--Analysis)

BORISOV, Yu.P.; MUKHARSKIY, M.D.

Determining certain parameters of reservoir rocks by drill-stem
testing (conclusion). Neft.khoz. 38 no.2:49-54 Y '60.
(MIRA 13:8)

(Oil sands--Analysis)

KRYLOV, Aleksandr Petrovich; BELASH, Pavel Maksimovich; BORISOV, Yuriy Petrovich, kand. tekhn. nauk; BUCHIN, Aleksandr Nikolayevich; VOINOV, Viktor Viktorovich; GLOGOVSKIY, Mark Mikhaylovich; MAKSIMOV, Mikhail Ivanovich; NIKOLAYEVSKIY, Nikolay Matveyevich, doktor ekon. nauk; ROZENBERG, Maks Davidovich; SAVINA, Z.A., ved. red.; POLOSINA, A.S., tekhn. red.

[Programming the development of oil fields; principles and methods]
Proektirovanie razrabotki neftiannykh mestorozhdenii; printsipy i metody. Moskva, Gostoptekhizdat, 1962. 429 p. (MIRA 15:6)

1.Chlen-korrespondent Akademii nauk SSSR (for Krylov).
(Oil reservoir engineering)

BORISOV, Yu.P.; TABAKOV, V.P.

Calculating the interference of lines of inclined multihole wells drilled in a multizone reservoir. Nauch.-tekhn. sbor. po dob. nefti no.15:50-54 '61. (MIRA 15:9)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut.
(Oil reservoir engineering)

BORISOV, Yu.P.

Pressure calculation in elastic drive and variable rate of
production of wells. Nauch.-tekhn. stor. po dob. nefti no.1:
19-23 '58. (MIRA 15:9)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut.
(Oil reservoir engineering)

BORISOV, Yu.P.; TABAKOV, V.P.

Oil flow toward straight and inclined wells in an isotropic layer of finite thickness. Nauch.-tekhn. sbor. po dob. nefti no.16:34-39 '62. (MIRA 15:9)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut.
(Oil reservoir engineering)

BORISOV, Yu.P.; TABAKOV, V.P.

Determining the yield of a multistage well in an isotropic layer of great thickness. Nauch.-tekhn. sbor. po dob. nefti no.16:51-56 '62. (MIRA 15:9)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut. (Bashkiria--Oil reservoir engineering)

BORISOV, Yu.P.

Approximation formulas for calculating certain characteristics
of the pattern flooding process prior to the outburst of water.
Trudy VNII no.37:96-107 '62. (MIRA 16:6)
(Oil field flooding)

BORISOV, Yu.P.; ORLOV, V.S.

Approximation method for calculating the recovery of petroleum
and water in pattern flooding. Trudy VNII no.37:108-129 '62.
(MIRA 16:6)

(Oil field flooding)

KRYLOV, A.P.; BORISOV, Yu.P.

Scientific principles of present-day oil-field production methods
and their development. Neft. khoz. 40 no.12:33-38 D '62.

(MIRA 16:7)

(Petroleum production)

KRYLOV, A.P., red.; AFANAS'YEVA, A.V., kand. tekhn.nauk, red.;
BORISOV, Yu.P., doktor tekhn. nauk, red.; BRISKMAN, A.A.,
red., kand. tekhn. nauk; BUCHIN, A.N., kand. ekon. nauk,
red.; VIRNOVSKIY, A.S., doktor tekhn. nauk, prof., red.;
ZHEITOV, Yu.P., kand. tekhn. nauk, red.; MAKSIMOV, M.I.,
kand. geol.-miner. nauk, red.; MARKOVSKIY, G.E., inzh.,
red.; MELIK-PASHAYEV, V.S., doktor geol.-miner. nauk, red.;
NIKOLAYEVSKIY, N.M., doktor ekon. nauk, prof., red.;
PETROVSKAYA, A.N., kand. geol.-miner. nauk, red.;
PILATOVSKIY, V.P., doktor fiz.-mat. nauk, red.; ROZENBERG,
M.D., doktor tekhn. nauk, red.; SAFRONOV, S.V., kand. tekhn.
nauk, red.

[Petroleum production; theory and practice. 1967 yearbook]
Dobycha nefti; teoriia i praktika. Ezhegodnik 1963. Moskva,
Nedra, 1964. 302 p. (MIRA 17:9)

1. Chlen-korrespondent AN SSSR (for Krylov). 2. Vsesoyuznyy
neftegazovyy nauchno-issledovatel'skiy institut (for Melik-
Pashayev, Rozenberg). 3. Institut mekhaniki AN SSSR (for
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Title : ~~Decreasing the expenditure of ferrous metals during the repair of equipment~~

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